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Christopher M. Look

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EXAMINER

LEUNG, WAI LUN

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/785,617	<b>Applicant(s)</b> LOOK, CHRISTOPHER M.	
	<b>Examiner</b> DANNY W. LEUNG	<b>Art Unit</b> 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 23-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Election/Restrictions*

1. Claim 26 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10/20/2008.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, and 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by **Darcie et al.** (*US005559624A* ).

Regarding to claim 1, **Darcie** discloses a method to verify connectivity between an optical transceiver (*fig 1, receiver/modulator 140*), and a wavelength switch module (WSM) (*fig 1, central office 10 is a wavelength switch module because it switches the wavelengths designated to different ONU using a frequency tunable optical transmitter*), the method comprising:

sending a first optical signal from the optical transceiver to the WSM (*fig 1, upstream signal is being sent on  $\lambda_1$  via fiber 91 from the transceiver 140 to the WSM 10*);

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checking a second optical signal received by the optical transceiver (*fig 1, detector 110 receives signal  $\lambda_1$  on fiber 96*) after sending the first optical signal (*fig 1, processor 120 checks the signal received at the appropriate moment; col 6, ln 35-41*);

determining whether the second optical signal corresponds to the first optical signal (*col 6, ln 59-63, processor 120 receives identification information from the downstream signal and also put identification onto the upstream signal to determine if they corresponds to each other*),

the optical transceiver putting an identification into the first optical signal to send with the first optical signal to the WSM (*col 6, ln 59-63, processor 120 can add identification information to the upstream signal that identifies the ONU*), to allow a processor communicatively coupled to the WSM (*fig 1, CO Processor 15 coupled to central office 10*), to determine if the second optical signal corresponds to the first optical signal (*col 7, ln 59-65, CO processor 15 transmit each ONU's information in a successive order, and then it checks the upstream information as shown in fig 8* ).

As to claim 2, **Darcie** further teaches wherein determining whether the second optical signal corresponds to the first optical signal comprises:

varying power of the first optical signal before the first optical signal exits the WSM (*col 6, ln 43-47, optical modulator 115 as shown in fig1 intensity modulates the upstream information onto the optical carrier at the transceiver side, which inherently before the first optical signal exits the WSM since it hasn't left the transceiver yet*);

and measuring the second optical signal to determine whether power of the second optical signal changes in response to the varying of the power of the first optical signal (*fig 1,*

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*optical detector 110 measures the power of the second optical signal while the intensity modulator 115 is varying the power of the upstream signal).*

As to claim 3, **Darcie** further teaches wherein the optical transceiver determines whether the second optical signal corresponds to the first optical signal by checking whether the second optical signal includes the identification (*col 6, ln 59-63, processor 120 check to see if the downstream signal includes an identification*).

As to claim 5, **Darcie** further teaches wherein the first optical signal enters the WSM at an input port of the WSM (*fig 1, fiber 12 connected to the input port of central office 10*), passes through a channel of the WSM (*fig 1, channel 18*), and exits through an output port of the WSM (*fig 1, output line 14*), the output port being coupled to the input port via the channel and having a one-to-one correspondence with the input port (*fig 1, there is one input port 12 and one output port 14*).

As to claim 6, **Darcie** further teaches causing a processor (*fig 1, CO processor 15*) to look up a wavelength designated to the channel (*col 4, ln 45-54, CO processor 15 formats the downstream optical signal so that it is at a particular wavelength designated to the ONU*);

and checking whether the optical transceiver is at the wavelength designated to the channel (*col 4, ln 54-62, the CO processor 15 controls the sequencer 30 to repetitively steps through the wavelengths  $\lambda_1$   $\lambda_2$  etc, associated with each ONU at each time slot, to check if the ONU are transmitting at the designated wavelength at the designated time slot*).

As to claim 7, **Darcie** further teaches comprising tuning a light source of the optical transceiver to the wavelength designated to the channel if the optical transceiver is not at the wavelength designated to the channel (*col 4, ln 63-col 5, ln 5, CO processor 15 controls the*

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*sequencer such that it controls frequency tunable optical transmitter 20 so that it is transmitting an optical signal having the designated wavelength),*

As to claim 8, **Darcie** further teaches wherein causing the processor to look up the wavelength comprises sending an interrupt to the processor upon detection of the first optical signal at the input port of the WSM (*col 7, ln 59-65, the interrupt signal as shown in fig 8 is sent to the CO processor 15 such that it could look up wavelength information according to the distance of the ONU).*

4. Claims 23 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by **Bradford et al.** (*US007046928B1*).

Regarding to claim 23, **Bradford** discloses A method comprising: sending a first optical signal from an optical transceiver to an input port of a wavelength switch module (WSM) (*fig 1, input port 1 of optical switch 106*), wherein the first optical signal passes through the WSM via a channel within the WSM; causing a processor (*fig 1, 110*), to look up a wavelength designated to the channel (*col 3, ln 46-49, control processor 110 selects a mapping of inputs to outputs, and this mapping is established based on wavelength assignments (col 5, ln 8-9)*); and checking whether the optical transceiver is at the wavelength designated to the channel (*col 5, ln 50-51*).

As to claim 25, **Badford** further teaches wherein causing the processor to look up the wavelength comprises sending an interrupt to the processor upon detection of the first optical signal at the input port of the WSM (*col 5, ln 45-51, a TestStatusSuccess message is sent to the control channel when the first signal wavelength is verified*).

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5. Claims 9 is rejected under 35 U.S.C. 102(e) as being anticipated by **Handelman et al.** (*US 20030174659A1*).

Regarding to claim 9, **Handelman** discloses a machine-accessible medium that provides instructions that, if executed by a processor (*fig 5, processing unit 420*), will cause the processor to perform operations comprising:

receiving an interrupt from a wavelength switch module (*paragraphs 167, receiving an indication of the interference between channels (an interrupt) from a BER measurement equipment in the routing apparatus 405 (a wavelength switch module)*); and

in response to the interrupt (*paragraphs 168, once interference is detected, the following is performed*),

identifying the wavelength switch module (*fig 5, routing apparatus 405*); and

identifying an input port of the WSM that receives a first optical signal (*paragraphs 168, each port that is carrying a sequence of the N channel wavelengths is identified, as odd or even*), from an optical transceiver (*it is inherent that these optical signal has to come from an optical transceiver*).

### ***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Darcie et al.** (*US005559624A*), in view of **Jennings et al.** (*US20020015200A1*).

Regarding claim 4, **Darcie** discloses the method in accordance to claim 3 as discussed above. **Darcie** does not disclose expressly sending an error message if the second optical signal does not include the identification of the first signal. **Jennings**, from the same field of endeavor, teaches a method to verify connectivity comprising sending an error message if the second optical signal does not include the identification for the first signal (*paragraphs 16 describes sending  $\lambda_1$  as a part of the first optical signal with  $\lambda_2$ , and loop back as a part of the second optical signal with  $\lambda_3$ ; then paragraphs 18 describes monitoring shelf unit is capable of detecting signal degradation of  $\lambda_1$ , such that if the second signal does not include  $\lambda_1$ , a failure indication will be sent to the central office*). Therefore, it would have been obvious for a person of ordinary skill in the art at the time of invention to send an error message if the second optical signal does not include the identification onto **Darcie**'s system as suggested by **Jennings**. The motivation for doing so would have been to be able to perform equipment switching and protection for the system.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Bradford et al.** (*US007046928B1*) in view of **Majima** (*US006101014A*).

Regarding claim 24, **Bradford** discloses the method in accordance to claim 23 as discussed above. **Bradford** does not disclose expressly tuning a light source of the optical transceiver to the wavelength designated to the channel if the optical transceiver is not at the wavelength designated to the channel. **Majima**, from the same field of endeavor, teaches tuning a light source (*fig 5, tunable LD 502*), of the optical transceiver to the wavelength designated to the channel if the optical transceiver is not at the wavelength designated to the channel (*col 6, ln 54-65*). Therefore, it would have been obvious for a person of ordinary skill in the art at the time



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of invention to use an optical transceiver comprising a light source which is tunable to a wavelength designated to the channel onto **Bradford**'s system as suggested by **Majima**. The motivation for doing so would have been to have a more flexible wavelength control operation.

9. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Handelman** (*US 20030174659A1*), in view of **Majima** (*US006101014A*).

Regarding claim 10, **Handelman** discloses the operation in accordance to claim 9 as discussed above. **Handelman** further teaches identifying a wavelength designated to a channel in the WSM corresponding to the input port (*paragraphs 168, a sequence of N channel wavelengths is assigned to each of the ports as shown in fig 5*). **Handelman** does not disclose expressly wherein the operations further comprise: determining whether the optical transceiver has received a second optical signal after sending the first optical signal. **Majima**, from the same field of endeavor, teaches an operation (*fig 5*) comprises: determining whether the optical transceiver has received a second optical signal after sending the first optical signal (*col 7, ln 45-48, it detects wavelength disposition and performs wavelength control operation accordingly*); and identifying a wavelength designated to a channel in the WSM corresponding to the input port (*col 7, ln 40-44, it receives signals of the wavelengths of the associated terminal station/channels*). Therefore, it would have been obvious for a person of ordinary skill in the art at the time of invention to determine whether the optical transceiver has received a second optical signal after sending the first optical in **Handelman**'s system, while identifying a wavelength designated to a channel in the WSM corresponding to the input port as suggested by **Majima**. The motivation for doing so would have been to have a more robust wavelength control operation.

As to claim 11, **Majima** further teaches wherein the operations further comprise: tuning a light source of the optical transceiver to the designated wavelength if the light source is not at the designated wavelength (*col 7, ln 16-21*).

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Handelman** (*US 20030174659A1*), in view of **Majima** (*US006101014A*), and further in view of **Miyachi et al.** (*US005920414A*).

Regarding claim 12, **the combination of Handelman and Majima** discloses the process in accordance to claim 10 as discussed above. **It** does not disclose expressly sending an error message if the light source is not at the designated wavelength. **Miyachi**, from the same field of endeavor, teaches sending an error message if the light source is not at the designated wavelength (*col 2, ln 42-50; also see fig 8, alarm generator 48*). Therefore, it would have been obvious for a person of ordinary skill in the art at the time of invention to send an error message if the light source is not at the designated wavelength onto **the combination of Handelman and Majima's** system as suggested by **Miyachi**. The motivation for doing so would have been to prevent sensitivity from deteriorate due to wavelength fluctuation.

#### ***Response to Arguments***

11. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Allowable Subject Matter***

12. Claims 13-22 are allowed.

13. The following is an examiner's statement of reasons for allowance:

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14. Prior art made of record does not teach “a set of one or more processors coupled to the WSM to automatically determine whether the second optical signal corresponds to the first optical signal in response to the identification and an interrupt from each of the WSM and the optical transceiver”, as described in applicant’s specification paragraphs 40-43 on pages 12-14, where the WSM sends an interrupt 301 to a processor, and the optical transceiver sends an interrupt 303 to a processor; and the processor looks up a physical location table 303 to identify the WSM, and looks up a laser table 395 to identify the transceiver, in order to automatically determine whether the second optical signal corresponds to the first optical signal.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

### ***Conclusion***

15. The prior art made of record in previous actions and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANNY W. LEUNG whose telephone number is (571)272-5504. The examiner can normally be reached on 11:30am-9:00pm Mon-Thur.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DANNY W LEUNG  
Examiner  
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/D. W. L./  
Examiner, Art Unit 2613  
January 28, 2009

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